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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/089,312	06/02/1998	STEWART FINDLATER	CISCP035	2703

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EXAMINER

HOM, SHICK C

ART UNIT	PAPER NUMBER
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2666

DATE MAILED: 05/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/089,312

Applicant(s)

FINDLATER ET AL.

Examiner

Shick C Hom

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 February 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 2-12-03 have been fully considered but they are not persuasive.

In response to applicant's argument in page 5 line 27 to page 6 line 9 that the invention relates to time-division multiplexing done on the basis of function rather than on the basis of channels or connections as taught by Runaldue et al., a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

2. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

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Drawings

3. The drawings submitted with this application were declared informal by the applicant. Accordingly they have not been reviewed by a draftsman at this time. When formal drawings are submitted, the draftsman will perform a review.

Direct any inquiries concerning drawing review to the Drawing Review Branch (703) 305-8404.

Specification

4. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

5. Claim 16 is objected to because of the following informalities: In claim 16 line 9, the words "a receive data valid signal" and "a receive error signal" seem to refer back to "a receive data valid signal" and "a receive error signal" recited in claim 16 line 6. If this is true, it is suggested

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changing "a receive data valid signal" and "a receive error signal" to ---the receive data valid signal--- and ---the receive error signal data---. Appropriate correction is required.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made. This application currently names joint inventors. In

considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103[®] and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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7. Claims 1-4, 7-8, 11-12, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Runaldue et al. (6,108,726) in view of Hoang (6,067,585).

Regarding claim 1:

Runaldue et al. disclose the method of communicating between a media access control layer (MAC) and a physical layer (PHY) (see Fig. 1, the serial interface 20 connecting the MAC layer 12 and the PHY 16), comprising: sending a first 100 MHZ time-division multiplexed signal on a receive data line (see col. 4 lines 51-59 which teach multiplexing 10 GPSI interfaces onto a single interface using an 100 MHZ interface and col. 3 lines 65-67 which recite the RXDATA pin for receiving multiplexed data); sending a plurality of time-division multiplexed receive control signals on a receive control line (col. 4 lines 1-3 which recite the RXDATAVALID pin for receiving multiplexed control signal); send a second 100 MHZ time-division multiplexed signal on a transmit data line (see Fig. 5 and col. 4 lines 34-45 which recite the data signal); sending a plurality of time-division multiplexed transmit control signals on a transmit control line (see Fig. 5 and col. 4 lines 34-45 which recite the CLOCK or control signal), wherein the receive control signals include a

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receive data valid signal (col. 3 lines 15-20) and a receive error signal and the transmit control signals include a transmit enable signal (col. 2 lines 48-64) and a transmit error signal.

Regarding claims 2-4, 7-8:

Runaldue et al. disclose wherein the TDM receive control signal includes 4 bit segments wherein each 4 bit segment includes a synchronization bit and wherein the receive data line includes 4 bit segments wherein the beginning of a 4 bit segment is determined by the synchronization bit and wherein the TDM receive control signal includes 4 bit segments and wherein each 4 bit segment includes a receive data valid bit (col. 4 lines 26-33).

Regarding claims 11 and 12:

Runaldue et al. disclose the step of indicating the speed of the PHY using the receive data line including an interface speed bit in a data segment when a receive control segment indicates no carrier sense, no receive data valid and no receive error (col. 1 line 65 to col. 2 line 10 and col. 2 lines 48-64).

Regarding claim 16:

Runaldue et al. disclose the media access control layer to physical layer interface (see Fig. 1, the serial interface 20 connecting the MAC layer 12 and the PHY 16) consisting

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essentially of: a common clock (col. 4 lines 4-12); a time-division multiplexed receive data line (col. 3 lines 65-67); a time-division multiplexed receive control line for transmitting different functional types of receive control signals (col. 4 lines 1-3) including a receive data valid signal ((col. 3 lines 15-20); a time-division multiplexed transmit data line (see Fig. 5 and col. 4 lines 34-35); a time-division multiplexed transmit control line for transmitting different functional types of transmit control signals (Fig. 5 and col. 4 lines 34-45) including a receive data valid signal (col. 3 lines 15-20).

Runaldue et al. did not recite the receive error signal included in the receive control signals having the receive data valid signal and the transmit error signal included in the transmit control signals having the transmit enable signal as in claims 1, 15, and 16.

Hoang teaches that it is known to provide a plurality of Media Independent Interface MII ports wherein each link includes a transmit enable signal, a transmit coding error signal, a

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receive data valid signal and the transmit error signal included in the transmit control signals having the transmit enable signal as in claim 1.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the receive error signal included in the receive control signals having the receive data valid signal and the transmit error signal included in the transmit control signals having the transmit enable signal as taught by Hoang in the system and method of communication between the MAC and PHY devices of Runaldue et al. The receive error signal included in the receive control signals having the receive data valid signal and the transmit error signal included in the transmit control signals having the transmit enable signal can be implemented by inserting the receive error signal and the transmit error signal of Hoang into the multiplexed serial link 20 as shown in Fig. 1 of Runaldue et al. The motivation for providing the receive error signal included in the receive control signals having the receive data valid signal and the transmit error signal included in the transmit control signals having the transmit enable signal as taught by Hoang in the system and method of communication between the MAC and PHY devices being that it provides a more adaptable controller

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interface for communicating between different devices and said adaptable interface being desirable to achieve efficient system operation in Runaldue et al.

8. Claims 5-6, 9-10, 13-14, 15, and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Runaldue et al. in view of Hong as applied to claims 1 and 16 above, and further in view of Chow et al.

Regarding claims 5-6, 9-10, 13-14, 15, and 17-18:

Runaldue et al. in view of Hoang disclose the interface described in paragraph 6 of this office action. However, Runaldue et al. in view of Hoang did not teach the interface being between a first MAC and a second MAC as in claim 15, a receive and transmit error bit as in claims 5, 10, 17, 18 and a carrier sense bit as in claims 6, 17. Runaldue et al. in view of Hoang did not teach using an elasticity buffer that is long enough and at least 27 bits long to buffer data from a data source as in claims 13-14. Runaldue et al. in view of Hong did not teach a transmit enable bit as in claims 9, 18. Runaldue et al. in view of Hoang did not recite wherein the receive control signals further include a synchronization (SYNC) signal and a carrier sense signal as in claim 19 and wherein the transmit

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control signals further include a synchronization (SYNC) signal as in claim 20.

Chow et al. teach that it is known to provide interface between media access control MAC ports 60 and MAC ports 62 whereby each of the MAC ports 60, 62 has a receive first-in-first-out FIFO buffer and transmit FIFO buffer as shown in Fig. 3A in the field of digital and multiplex communications for the purpose of more robust method of sending and receiving data packets which clearly anticipate the interface being between a first MAC and a second MAC as in claim 15 and the elasticity buffer that is long enough to buffer data from a data source as in claim 14; further, col. 6 lines 9-27 which recite the PCI interface being a 32-bit clearly anticipate the buffer being least 27 bits long as in claim 13. Col. 7 lines 23-32 which recite generating and outputting the carrier sense signal to the MAC clearly anticipate the carrier sense bit as in claims 6, 17, 19-20. Col. 1 line 56 to col. 2 line 6 which recite the TXC line being a free running clock signal provided by the MAC to strobe out serial NRZ (Non-Return to Zero) transmit data wherein the TXE line indicates valid transmit data from the MAC and frames an entire packet and the CRS line for indicating valid data on the RXD line clearly anticipate the receive and transmit

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error bit as in claims 5, 10, 17, and 18. Col. 6 lines 28-62 which recite the interface receiving the transmit enable TXE signal clearly anticipate the transmit enable bit as in claims 9, 18.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the interface being between a first MAC and a second MAC, the receive and transmit error bit, the carrier sense bit, using an elasticity buffer that is long enough and at least 27 bits long to buffer data from a data source, and the transmit enable bit as taught in Chow et al. to the multiplex interface of Runaldue et al. in view of Hoang. The second MAC, the receive and transmit error bit, the carrier sense bit, transmit enable bit, and the elasticity buffer that is long enough and at least 27 bits long to buffer data from a data source can be implemented by replacing the PHY device with the second MAC and inserting the error bit and carrier sense bit in the multiplex link between the devices and connecting the elasticity buffer that is long enough and at least 27 bits long to buffer data from a data source at the devices. The motivation for the interface being between a first MAC and a second MAC, the receive and transmit error bit, the carrier sense bit, using an elasticity buffer that is long enough

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and at least 27 bits long to buffer data from a data source, and the transmit enable bit being that it provides a more robust method of sending and receiving data packets and said more robust packet switching being desirable to achieve efficient system operation in Runaldue et al. in view of Hoang.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the

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statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any response to this final action should be mailed to:

Box AF

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shick Hom whose telephone number is (703) 305-4742. The examiner's regular work schedule is Monday to Friday from 8:00 am to 5:30 pm EST and out of office on alternate Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao, can be reached at (703) 308-5463.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.



DANG TON
PRIMARY EXAMINER

SH

May 2, 2003